



Composites Construction UK



**BUILDINGS**



**TRANSPORT**



**ENERGY**



**WATERFRONT**



**UTILITIES**

[www.fibrwrap-ccuk.com](http://www.fibrwrap-ccuk.com)

**ISO  
9001 : 2015  
REGISTERED**

**ISO  
14001 : 2015  
REGISTERED**

**OHSAS  
18001 : 2007  
REGISTERED**



# TYFO® FIBRWRAP® ADVANCED COMPOSITE MATERIALS

Fibrwrap systems are specialist TYFO carbon, glass, aramid and hybrid fabrics combined with TYFO epoxy resins which, in unique combination, create the superior Fibrwrap Advanced Composite Systems or FRP. Fibrwrap Systems are engineered, specified and installed to solve a host of structural deficiencies or demands in existing structures.

Fibrwrap enhances the structural capacity of existing structural elements which require additional strengthening, rehabilitation, and repair, including seismic retrofit, pipe rehabilitation, structural preservation, comprehensive force protection, blast mitigation, corrosion related repair and rehabilitation, additional loading, and environmental protection.

Since its establishment in 1988, Fyfe Co LLC, through a vigorous research and development program, has managed to produce the Tyfo® Fibrwrap System (TFS®). The Tyfo Fibrwrap System has been reviewed and approved by more independent authorities than any other system in any other country.

Carbon, glass or aramid reinforcing fibers are combined with high quality resins to produce a multitude of high performance FRP strengthening systems, which - in turn - provide design engineers with a wide range of options to meet the individual needs of a project. The success is proven by the fact that the Tyfo Fibrwrap System is a reliable composite strengthening system with more approvals and more demonstrated and proven installations than any other system in the industry.

The Tyfo Fibrwrap System includes a carbon fiber solution that meets the International Building Code® (IBC®) requirements.

# CONCRETE REHABILITATION & REPAIR

What Composites Construction has to offer beyond the expertise of most concrete repair contractors is an engineered approach to the restoration of concrete. We analyse the root cause of the degradation with our own structural engineers reviewing the all the field conditions, this added value allows us to offer more of a long-term solution, rather than a concrete patch.

The repair of concrete buildings and structures requires quality materials but more importantly experienced and skilled tradesmen to ensure that the repair is undertaken correctly. The removal of the defective areas of concrete, preparation of the exposed steel reinforcement, and concrete reinstatement has to be done correctly for the repair to last.

For small repair areas we use electric or pneumatic tools to remove the concrete and for larger volumes we often use hydro demolition contractors. The concrete reinstatement can be hand applied mortars or for large volumes it may be sprayed concrete or flowable self-compacting mortars. The concrete surface finishing often needs to match the existing colour and texture.

After repairing the concrete a protective coating can be applied to all the exposed concrete surfaces to enhance the durability and for aesthetic reasons. These coatings can protect against further carbonation of the concrete and chloride ingress.

In addition to the repair of concrete, CCUK also offers the Tyfo Fibrwrap System to prolong the life and protect the concrete restoration. Fibrwrap products have been proven to protect and resist erosion, corrosion or chemical attacks when applied to concrete in aggressive environments.

# SUPPLEMENTARY PROTECTION SERVICES

**Waterproofing and Leak Sealing**  
contractors CCUK have aligned themselves with many of the UK's leading suppliers of Hydrophobic and Hydrophilic resins for the following solutions

- Emergency leak sealing, basements, tunnels, dams
- Curtain walling injection barriers and coatings
- Slab lifting services
- Resin mortar repairs and grouting

**CCUK is a leading specialist fire protection contractor** providing passive fire protection systems and life safety solutions throughout the UK and Europe.

We specialise in supplying fire protection to carbon fibre strengthening, concrete and structural steel.

**CCUK Coatings Division** have an extensive menu of options for the modern-day challenge, specifying, installing and guaranteeing the correct solution every time. CCUK provides coating services for the following applications.

- Blast Mitigation & Energy Absorption
- Environmental Protection
- Chemical Resistance
- Corrosion & Erosion Resistance
- Abrasion Resistance
- Seismic Reinforcement

**Corrosion and Erosion services**  
specialists CCUK are fully trained and approved in the application of Fibrwrap Systems used for the rehabilitation of eroded, corroded or distressed members in environments like ports, jetties and power plants.



Composites Construction UK

# CONTENTS



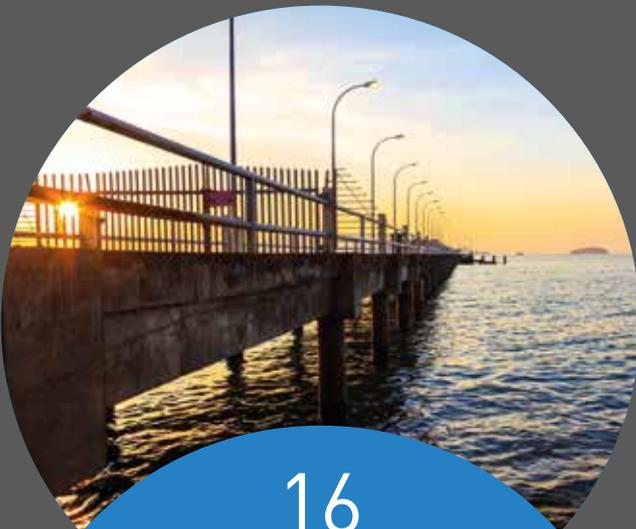
4  
BUILDINGS

A circular image showing a modern city skyline at dusk, with several tall skyscrapers illuminated against a dark sky. The Gherkin is prominent on the right. Below the image is a red semi-circular shape containing the number '4' and the word 'BUILDINGS' in white.

8  
TRANSPORT

A circular image of a large concrete bridge with multiple spans and pillars, crossing a body of water. Below the image is a grey semi-circular shape containing the number '8' and the word 'TRANSPORT' in white.

12  
ENERGY

A circular image of a nuclear power plant with several large cooling towers, situated behind a residential area. Below the image is a green semi-circular shape containing the number '12' and the word 'ENERGY' in white.

16  
WATERFRONT

A circular image of a waterfront pier or walkway extending into the water, with a railing and streetlights. The sun is low on the horizon, creating a warm glow. Below the image is a blue semi-circular shape containing the number '16' and the word 'WATERFRONT' in white.

20  
UTILITIES

A circular image of a large water treatment facility with curved concrete structures and aeration tanks. Below the image is an orange semi-circular shape containing the number '20' and the word 'UTILITIES' in white.

# BUILDINGS



# STRENGTH

All buildings, whether private or public will be in need of repair or strengthening work at some point during their life cycle.

This can be attributed to various reasons such as structural deterioration due to corrosion, change of use, any increase of loading demands, compliance with new design codes, design or construction errors and emergency repairs.

The Tyfo Fibrwrap Systems are the only carbon fiber solution that meets the International Building Code® (IBC®) requirements.

In the last 20 years, Tyfo Fibrwrap Systems technology has proven to be a formidable solution to a variety of structural demands posed by structural engineers, designers and asset owners. It has the added benefits of being both cost and time effective.

Fibrwrap's state-of-the-art material technology combined with purposely developed application methods, provide efficient structural repairs, rehabilitation or upgrades.





## APPLICATIONS

CCUK's specifically trained FRP engineers and technicians can design any FRP solution in order to provide structural solutions to owners (both state and private), engineers and designers involved in rehabilitation and structural upgrade of buildings. CCUK take a value engineered approach and is involved in design and construction in order to suggest and implement a tailor made solution to the client needs.

CCUK offers specially designed strengthening solutions for various buildings such as office blocks, apartments and mixed-use developments either old buildings or sometimes new ones under construction. Typical scenarios for FRP solutions include refurbishment, change of use, structural upgrade or design/construction errors. Our technically designed strengthening solutions are the most cost and time effective solutions for the vast majority of structural deficiencies

## BENEFITS

- Extensive experience in the whole range of building projects (existing, new)
- CCUK work with owners, structural engineers, and contractors in search for the most suitable, customised and cost-effective solution
- Exclusive use of Tyfo Fibrwrap Systems to cover any need for structural strengthening, rehabilitation, interventions, upgrades, change of use or repairs in existing buildings
- Minimal disruption and a very fast installation time
- Fully tested fire protection coatings are available for your FRP solution
- Blast and force mitigation techniques for protection of life and valuable assets.



## SOLUTIONS

- Rehabilitation of corroded or distressed members in order to restore lost capacity.
- Structural upgrades to improve the load-bearing capacity of a building. Additional shear and flexural capacity can be added to beams, columns, slabs and walls.
- Change of use in buildings which results in increased demands for strengthening.
- Preservation of historic buildings with a variety of materials which can be used to repair/strengthen the historic structures while preserving their appearance.
- Restoration to the design strength level of buildings where construction errors have resulted in structural deficiencies (missing or misplaced rebars, low concrete strength, or inadequate concrete cover).
- Column, beam, slab and wall to increase shear strength, flexural strength, ductility and improve confinement.
- Stabilise and strengthen masonry and ceiling.
- A lightweight, low-profile rehabilitation system which is installed very fast and results in minimum disruption.
- All structural elements of a building can be repaired or upgraded to the building owner's specific needs in the smallest time period, allowing the building and its people to function before, during and after the upgrade procedure.

# BUILDING CASE STUDIES

## Blyth Road Strengthening

Strengthening of an existing concrete frame under construction for mixed use development, more than 300 individual areas strengthened using Tyfo Fibrwrap Systems, The strengthening for flexure and punching shear throughout these 3 large buildings took more than 20 weeks. A final coating of Fibrwrap's 4 hour Fire Protection Coating was applied to every area.

**Project:** Blyth Road - Hayes

**Client:** CField Construction

**Contract Duration:** 24 weeks

**Scope of Work:** Strengthening of an existing concrete frame under construction for mixed use development, 300 areas strengthened using Tyfo Fibrwrap Systems

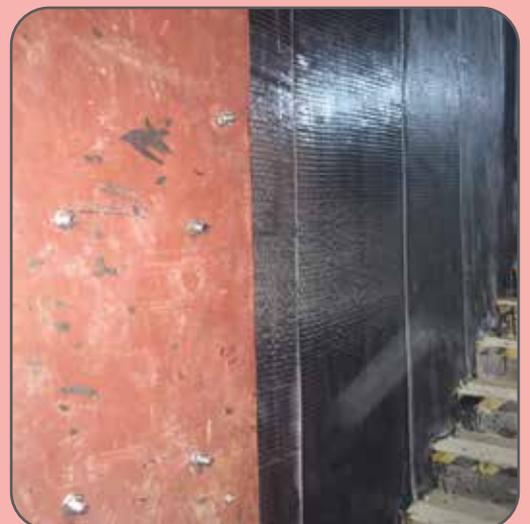




## Hill House Strengthening

An 11 storey office block in North London was converted into luxury residential apartments in 2015. Fibrwrap UK was contracted to design and install CFRP wall strengthening in the central cores for additional loading, door openings through shear walls internally and service risers through concrete slabs. The whole project consumed over 4000m<sup>2</sup> of Fibrwrap Carbon Fibre Wrap Systems, 32 tonnes of steel and over 300 Fibrwrap patented carbon fibre anchors to pass through slabs and staircases between floors. In addition the design called for the strengthening scheme within the cores to be anchored into the foundations, CFRP anchors 1.6m long were drilled and resin fixed into the pile caps. This extremely complicated FRP design could only be achieved using Tyfo Fibrwrap Systems, we were very proud to be working on such a large project and believe is still the largest FRP strengthening of a building in the UK to date.

<b>Project:</b>	Hill House
<b>Client:</b>	HG Construction London
<b>Contract Duration:</b>	24 weeks
<b>Scope of Work:</b>	Shear Wall Strengthening



# TRANSPORT

# INFRASTRUCTURE

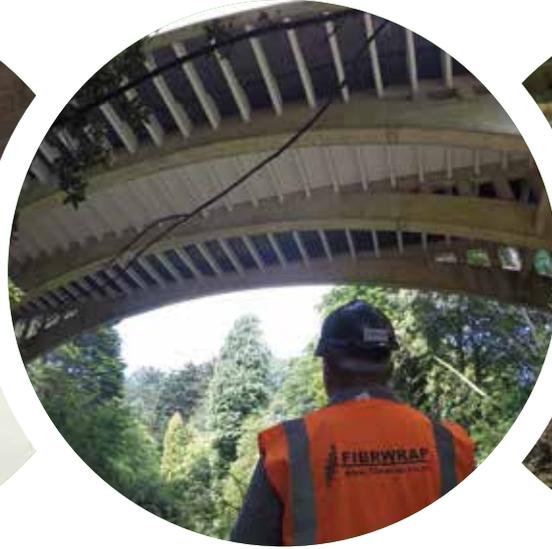
Transportation Infrastructure engineers and authorities face a constant challenge in maintaining and upgrading their assets to meet modern day use. CCUK specialise in extending the life cycle and increasing capacity of the UK's valuable bridge network.

Targeted actions are needed in order to repair, rehabilitate, and strengthen these structures. At the same time all necessary rehabilitation and strengthening construction work needs to be completed while maintaining the operational status of the facilities, i.e. without any or with minimum disruption to their daily use.

Tyfo Advanced Composite Systems are available to cover a wide range of issues related to the integrity of transportation structures. Structural repair and rehabilitation, structural upgrade, protection against environmental factors, corrosion and emergency repairs are some of the common problems now easily tackled with the use of such advanced materials and techniques.

Moreover, CCUK can completely fulfil the toughest requirements for structural preservation, corrosion related repair and rehabilitation and environmental protection. In addition, the client also benefits from the fact that all rehabilitation construction is carried out with minimum disturbance to traffic and normal every day operations.

CCUK also provides an insurance backed design and build service, we have the knowledge and capability to facilitate a full technical specification for the procurement and implementation of any composite strengthening system that will satisfy the specific demands for each client and project.



## APPLICATIONS

- Column, beam, slab, and wall applications to increase shear strength, flexural strength, ductility and to improved confinement where needed.
- Increase of shear and moment strength of beam to column connections.
- All structural elements (beams, columns, slabs, walls, etc.) can be repaired or upgraded with minimum disturbance to traffic and normal every day operations.

## BENEFITS

- Successful applications of the advanced composite systems since 1988
- Short application time required
- Rehabilitation of corroded or distressed members
- Prolongation of the service life expectancy of the structures
- Fast emergency repair of the damaged sections
- Architecturally friendly solutions that do not affect the aesthetics of structures

## FEATURES

- The Tyfo Fibrwrap System includes a carbon fiber solution that meets the International Building Code® (IBC®) requirements
- Thoroughly tested at many independent laboratories worldwide
- Cost-and time-effective solutions
- Extends the service life of existing structures
- Can lower the corrosion rate when confining existing members
- Can prevent the onset of corrosion when applied to new structural elements
- Can be used on circular, square, rectangular, hexagonal, flared and alternative shaped cross sections with negligible shape and size modifications
- Can be used to repair/strengthen historic structures while preserving their original appearance

## SOLUTIONS

- Rehabilitation of corroded or distressed members to restore lost capacity.
- Structural upgrades to improve load-carrying mechanisms. Additional shear and flexural capacity can be added to beams, columns, slabs, and walls of any transportation construction (bridge, tunnel, etc.)
- Preservation of historic structures, such as arch bridges, with a variety of materials that can be used to repair and strengthen while preserving their appearance.
- Emergency repairs.
- Design and/or construction error remediation.



# TRANSPORTATION CASE STUDIES

## Peasholm Bridge Strengthening

Over 900m<sup>2</sup> of Fibrwrap Carbon Fibre System was applied to the underside of this iconic bridge in Scarborough for North Yorkshire Council. For the select few that looked at the design of this bridge at tender stage they all said it couldn't be done, Fibrwrap worked closely with the local bridge engineer and due to the superior capabilities of the Tyfo Systems we made it work.

- Project:** Peasholm Bridge  
**Client:** North Yorkshire County Council  
**Contract Duration:** 6 weeks  
**Scope of Work:** Bridge Deck Strengthening





## Historic Bridge Renovation

Extensive damage was caused to this bridge by the floods in 2014, Eals Bridge near Hexham (Northumberland) was originally built in 1704 and has had many refurbishments over the years.

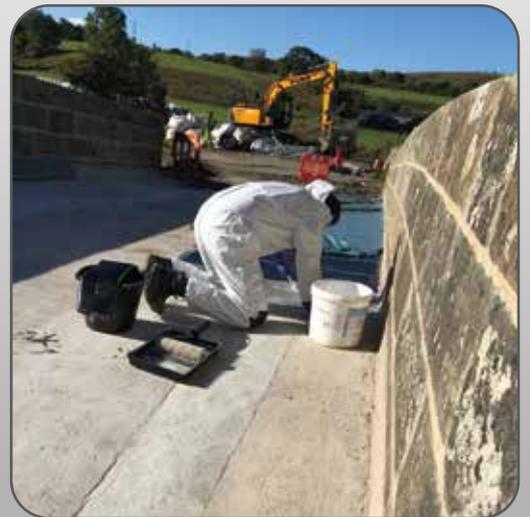
CCUK were part of a major repair scheme including civil build and structural works, Carbon fibre strengthening was also carried out to the cantilever footpaths to increase accidental load capacity to 40T.

**Project:** Cantilever Footpath Strengthening and Bridge Repairs

**Client:** Northumbria County Council

**Contract Duration:** 4 weeks

**Scope of Work:** Stone repairs, bridge deck strengthening and heat resistant coatings



# ENERGY

# SOLUTIONS

Protection of human life and assets is the first priority in any industrial environment.

At CCUK this is also our priority, it's something we promise to deliver.

Industrial structures present many unique problems often compounded by challenging environments.

Fast and durable solutions are needed to challenges which otherwise might lead to unsafe working conditions and the possibility of expensive shutdowns.

Strengthening applications typically include structural repair and upgrades, seismic retrofits, corrosion mitigation, change-of-use, protection from aggressive environments, design/construction error remediation and blast hardening.

Industrial facilities present many challenges including chemical attacks, degradation caused by extreme temperatures and impact forces.

In certain cases regulatory compliance requirements also offer complex challenges which need to be overcome while other facilities face the threat of spontaneous blast events.

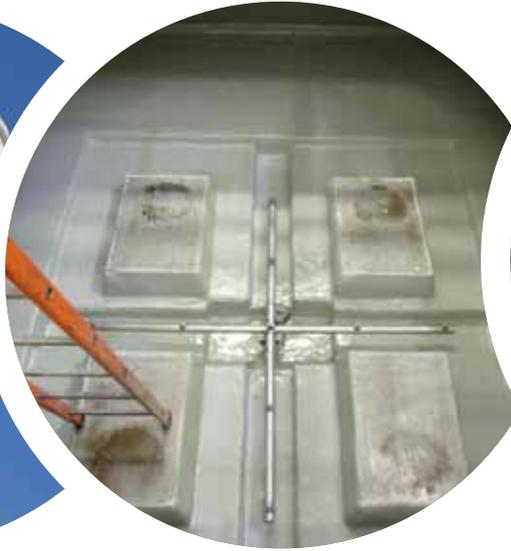
CCUK offers a number of benefits to industrial facility owners. Through our advanced technologies CCUK guarantees the unmatched prolongation of the expected life-cycle of existing structures, the undisturbed productivity during repair, the reduced maintenance cost due to the sustainable quality of the technical solution and the positive and long-lasting effect that Fibrwrap's work has on the environment – helping its clients to reduce their own carbon footprint.

## Fire Statement:

It is well recognised that composite strengthening systems do not behave very well in a fire condition, the fact that any epoxy resin will soften as it meets high temperatures means that there is a high risk of your system de-bonding. Whether your Fibrwrap strengthening system actually requires fire protection (from a structural perspective) will be calculated by our competent design teams, there is a good chance it's not applicable.

However should your carbon fibre require a fire protection system (structurally or to meet building authority approvals) then Fibrwrap has two very specialist coatings for both internal and external applications, we can meet both a 2 and 4 hour fire protection requirement. These systems are fully tested as part of the Tyfo Systems and are approved by





## APPLICATIONS

- Used extensively to retrofit reinforced concrete support structures such as pipe racks, equipment structures, pedestals, Coker units, industrial chimneys, silos, tanks, pressure vessels, pipelines and much more.
- The Tyfo Fibrwrap System products have excellent durability and chemical resistance properties and have been specially formulated to deliver long-lasting protection.
- Repair and strengthening buildings and structural members to guard against failure or collapse in the case of an overpressure event. Control rooms, and all structures which house employees in hazardous areas are prime candidates.

## FEATURES

- Thoroughly tested at independent laboratories
- Extension of the service life of existing structures
- Can lower the corrosion rate when confining existing members
- Can prevent the onset of corrosion when applied to new structural elements
- Can be used on circular, square, rectangular, hexagonal, flared and odd-shaped cross sections with negligible shape and size modifications
- Cost -effective
- Low impact to facility function
- Fast and safe application process

## BENEFITS

- Value-engineered approach to identify the cause and the nature of the problem
- Prolongation of the expected life-cycle of existing structures
- Minimum disturbance to the facility operation during repair
- Reduced maintenance costs due to excellent long-term material behaviour
- "Green" facility upgrade with a minimum environmental footprint
- Resistant and protection of structural members in aggressive environment.

## SOLUTIONS

- Rehabilitation of corroded or distressed members
- Strengthening of overstressed support structures
- Damage/Leak remediation and prevention
- Protection from corrosion and rectification
- Protection from aggressive environments
- Fire protection, impact force protection and blast hardening
- Emergency repairs



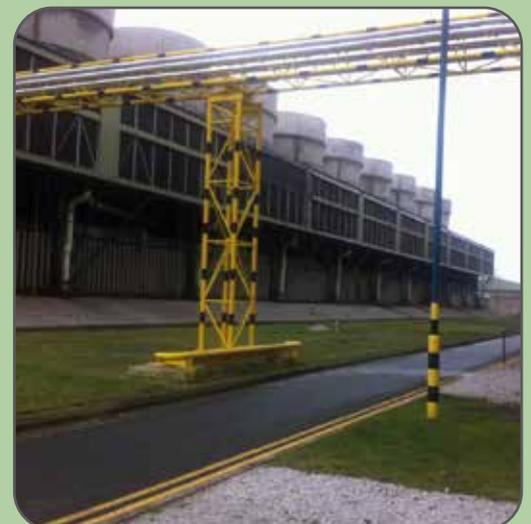
# ENERGY CASE STUDIES

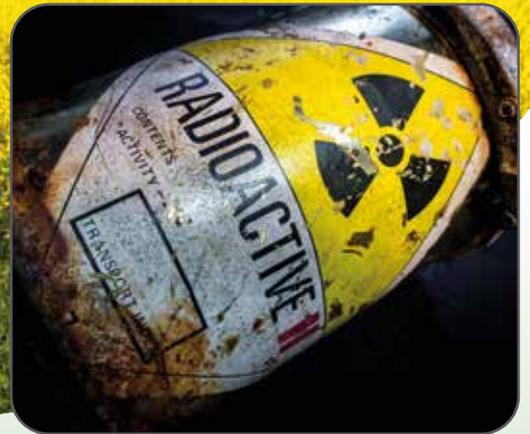
## Cooling pipe strengthening

E.ON Energy, one of the UK's leading power and gas companies contracted Fibrwrap UK to survey the 900mm diameter pipes that transfer cooling water from the nearby river to the condensers. The pipes were suffering from severe internal corrosion and there was a clear risk of bursting failure.

Fibrwrap UK designed a carbon fibre strengthening system that was capable of carrying the pressure the pipe was originally designed for in the case of accidental failure above ground.

- Project:** Cooling water pipe strengthening  
**Client:** E.ON Energy/Costain  
**Contract Duration:** 1 week/pipe  
**Scope of Work:** Concrete repairs and strengthening of cooling water pipes with Fibrwrap Carbon Fibre Strengthening Systems

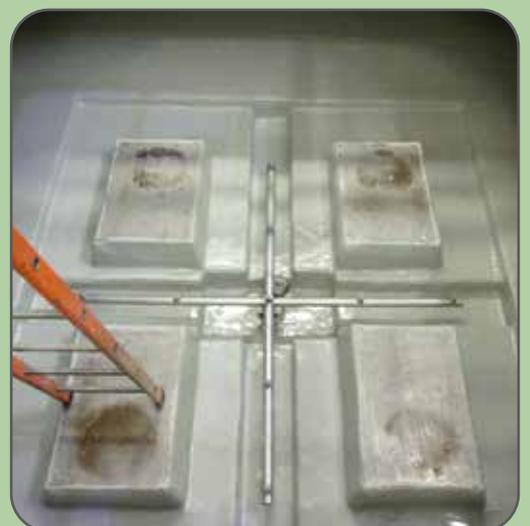




## Hinckley Point B Nuclear Flask Wash Coating

The previous coating to this tiled bund had started to fail and de-bond. CCUK carried out extensive testing to ensure the GFRP coating would adhere to the substrate with minimum surface preparation. A coating of Fibrwrap GFRP systems with a durable epoxy coating was applied to all the tiled surfaces within this critical piece of infrastructure. The works were carried out in a very short period of time under challenging health, safety and environment conditions.

- Project:** Relining of the nuclear flask wash bunds
- Client:** EDF Energy
- Contract Duration:** 3 weeks
- Scope of Work:** Bund Coating



# WATERFRONT



Waterfront structures are subjected to severe and aggressive environmental conditions due to their proximity or coexistence with water (seas, rivers or lakes).

Consequently they suffer heavy losses of strength, mainly due to corrosion, as they are in a constant wet/dry condition. The corrosive nature of marine environments can destroy the aesthetics of a structure, hinder its serviceability and render it useless. The level of structural distress varies with each project.

The Tyfo Fibrwrap System was purposely developed for waterfront structures and can resolve structural problems, rehabilitate and restore the aesthetics of any structure, provide significant long-term protection coating and prolong the service life of these structures.

The Tyfo Fibrwrap System is designed to add strength and protection to existing in-water structures. This system is comprised of high strength fibers and specially designed epoxies. They can be installed above or below the water line in both fresh and salt water, in circular, octagonal, rectangular and odd-shaped cross sections.

CCUK carries out corrosion and erosion prevention techniques, crack injection, spray concrete, abrasion resistance and cathodic protection services.



## APPLICATIONS

- Rehabilitation and repair to structural elements of waterfront structures such as piles, beams, slabs, walls (concrete, steel or wood)
- Protective, pigmented epoxy coating providing improved aesthetics and long-term durability
- Protection of corroded reinforced concrete and steel structures
- Preventative measures for new construction
- Preventing of corrosive agent intrusion including oxygen and marine organisms

## FEATURES

- Thoroughly tested at independent laboratories
- Cost - effective
- Extends the service life of existing structures
- Can significantly lowers the corrosion rate while confining existing members
- Can prevent the onset of corrosion when applied to new structural elements
- Can be used on circular, square, rectangular, hexagonal, flared and alternative shaped cross-sections with odd shapes with only minimal modifications
- Increase the member capacity for projects requiring change of use

## BENEFITS

- Advanced technological solution for rehabilitation and repair
- TFS is extensively tested and carry all required approvals
- Prevents the loss of strength due to corrosion or erosion
- Increases the original capacity for change-of-use retrofit projects
- Extends the life-cycle of any kind of waterfront structure
- Is installed with minimum disturbance and disruption
- Environmentally friendly solution

## SOLUTIONS

- Rehabilitation of corroded or distressed members
- Extension of service life
- Structural repair & strengthening near & under water
- Corrosion protection from aggressive environments
- Enhancement of structural capacity for increased loads
- Pre-fabricated Systems for underwater applications
- Cathodic protection
- Emergency repairs



# WATERFRONT CASE STUDIES

## Jetty strengthening

Installation of a new defence radar on the Shell Pier in Gosport highlighted a requirement for the repair and strengthening of a number of concrete pier columns. Fibrwrap was appointed as principle contractor for the strengthening project this included hanging scaffold and the concrete repair of this vital structure.

Fibrwrap has carried out specialist surface preparations, concrete repairs, carbon fibre strengthening and protective coatings as part of the whole refurbishment scheme. We also oversaw the installation and commissioning of the new radar tower on behalf of BAE.

**Project:** Gosport Jetty

**Client:** BAE Systems

**Contract Duration:** 16 weeks

**Scope of Work:** Repair and protection of an existing jetty to enable the installation of new radar tower. Fixed scaffold, concrete repairs and Tyfo Fibrwrap GFRP and CFRP materials

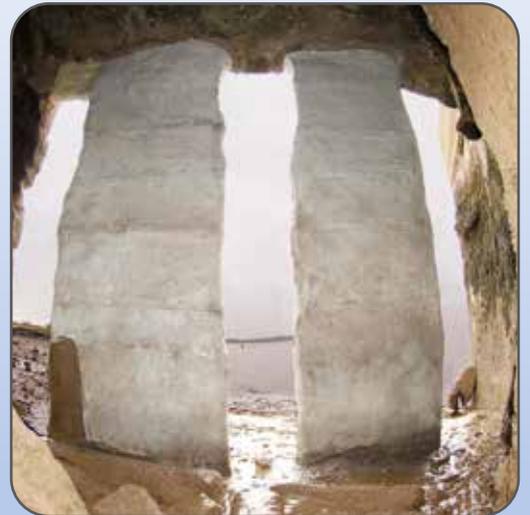




## Pier protection

Due to the great success in 2012 when we provided coastal erosion protection to 3 x smaller support columns, Bristol Port Company immediately saw the value in extending the life of these vital support columns at the entrance to the port at Avonmouth. The pier columns when cast were considerably larger than the reduced size of 10m high, 3m wide and 1m thick. To ensure no further erosion we wrapped these columns with Tyfo Systems. First we cleaned them with Hydro Blast methods and reshaped them using sprayed concrete. The columns were completely wrapped with Fibrwrap Systems and Tyfo Marine Epoxy.

- Project:** Bristol Docks  
**Client:** Bristol Port Authority  
**Contract Duration:** 8 weeks  
**Scope of Work:** Coastal Protection works of two concrete pier support columns dimensions 10m high x 3m wide by 1m thick



# UTILITIES

## MAINTENANCE

Pipeline networks and liquid storage facilities are a basic part of any country's infrastructure, however they are in constant need of maintenance in order to ensure a safe and cost effective operational status.

CCUK rehabilitate manholes and pipelines transporting sewage, as well as drinking water. We have the capabilities to repair and strengthen oil and gas pipes and other vital pieces of infrastructure that store or carry liquids to treatment plants and end users. Infrastructure like such needs constant maintenance in order to satisfy the ever- increasing demands of modern living.

Decades of continuous service for large diameter pipes (concrete, steel and ductile iron), either buried or above ground, have led to deterioration that threatens the structural integrity of these networks.

The industry is in need of innovative solutions which will provide structural strengthening, the upgrade of internal pressure capacity and significant extension to the service-life of these structures. Time and cost effective technologies are required, while minimum disturbance and disruption of every-day operations during any repair work are necessary.

CCUK uses the Tyfo Fibrwrap System for the repair, strengthening and retrofit of corrosion damaged and distressed large-diameter PCCP, RCCP, and steel pressure pipelines used in municipal, industrial and other facilities.

CCUK is at the forefront of trenchless technology for the structural repair of main pipeline networks and is capable of performing any rehabilitation work for repairs of liquid storage structures. We also provide design-build solutions which are tailored-made to satisfy the requirements of all utility's clients.

Tyfo Fibrwrap systems are fully tested and can be applied internally or externally to a pipe, tank, vessel or manhole and for a wide range of issues such as structural degradation, corrosion, structural upgrades, internal pressure increases, relining and emergency repair. The system complies with the most demanding environmental codes and is capable to withstand aggressive environmental exposures, including chemical and H2S attacks.

CCUK Coatings Division have an extensive menu of options for the modern-day challenge, specifying, installing and guaranteeing the correct solution every time.

## APPLICATIONS

- Structural repair (internal or external) of pipeline networks of medium to large diameter, from reinforced concrete, steel and ductile iron
- Repair and strengthening of liquid storage structures (walls and slabs of tanks)
- Relining of existing pipelines
- Joint and transition zone leak remediation and protection of pipes exposed to wear and corrosion and chemical attack

## BENEFITS

- Trenchless technology
- External Strengthening and leak remediation
- Specialist coating services to prevent corrosion or chemical attack internal and external
- Full design and installation service including guarantees and warranties
- Cost and time effective proposals and applications
- Minimum disturbance to the everyday activities of the client
- Ability to repair pipelines externally with minimum interruption to their operation
- Environmentally friendly solutions

## FEATURES

- Thoroughly tested at independent laboratories
- Cost -effective
- Extends the service life of existing structures
- Significantly lowers the corrosion rate by confining existing members
- Can be used on circular, square, rectangular, hexagonal, flared and alternative shaped cross sections with negligible shape and size modifications



## SOLUTIONS

- Increase of available hoop strength (increase internal pressure capacity)
- Damage/Leak remediation and prevention
- Protection from corrosion and rectification of the strength losses (due to corrosion)
- Increase of bending strength
- Increase of compression strength due to external loading
- Seismic Upgrades
- Update of pressure and flow
- Emergency repairs



# UTILITIES CASE STUDIES

## Power Station pipe strengthening

South Humber Bank Power Station (SHB) had a leak remediation and strengthening issue on their cooling water intake pipes. During a planned shutdown CCUK carried out extensive internal repairs, leak sealing and carbon fibre strengthening to these critical pieces of infrastructure.

**Project:** Humber Power Station

**Client:** SHB Power

**Contract Duration:** 4 days

**Scope of Work:** Repair and strengthening of Cooling water inlet pipes from scouring and erosion using Tyfo Fibrwrap FRP systems and Tyfo specialist under water epoxy





## Sewer Manhole repair

Our client Anglia Water requested the rehabilitation techniques of Fibrwrap Systems in this stand-alone sewer manhole just outside of Norwich. The concrete rings of the chamber had suffered from a reasonable amount of degradation resulting from the H<sub>2</sub>S gases omitting from the sewer line. CCUK carried out UHPW cleaning, concrete repairs and installed a unique structural lining system that will protect the chamber for many years.

**Project:** Anglia Water

**Client:** Barhale

**Contract Duration:** 3 days

**Scope of Work:** Repair and retrofit of existing sewer manhole due to the corrosive action of sewage and H<sub>2</sub>S gas



## OUR REACH

Working with CCUK Fibrwrap is the equivalent to entering the largest family of companies worldwide, dealing with any kind of structural rehabilitation need. With offices across the UK is a national business with a local twist, strengthening structures and protecting people, properties and assets everywhere.



Composites Construction UK

5 St Johns Street,  
London EC1M 4BH  
Tel: +44 (0) 2075 493676  
contact@fibrwrap.co.uk

Unit 20, Argyle Street Factory Estate,  
Hull HU3 1HD  
Tel: +44 (0)1482 425250  
contact@fibrwrap.co.uk

ISO  
9001 : 2015  
REGISTERED

ISO  
14001 : 2015  
REGISTERED

OHSAS  
18001 : 2007  
REGISTERED



[www.fibrwrap-ccuk.com](http://www.fibrwrap-ccuk.com)