FIBRWRAP®

Worldwide Specialized Contractors

Buildings

The application of the Tyfo® FIBRWRAP® System in Buildings (commercial, municipal, and historic residential)

FIBRWRAP CONSTRUCTION EUROPE Ltd.

Strengthening Structures | Protecting Lives Worldwide

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All buildings, private or public, are in need of repair or strenthening work at some point during their lifecycle.

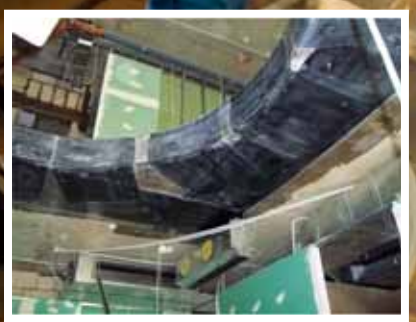
This can be attributed to various reasons such as structural deterioration due to corrosion, seismic events, change of use, increase of loading demands compliance with new design codes, design-construction errors and emergency repairs.

FRP technology in the last 20 years has proven to be a formidable solution to a variety of structural demands posed from owners, designers and architects with the added benefit of being cost and time effective.

State of the art material technology, in combination with purposely developed application methods provide structural repair, rehabilitation or upgrade efficient.

Strengthening and Repair of **masonry arches**, Tuscany, Italy

Strengthening of **Lebanese American University,** Beirut – Lebanon



Upgrading a circular opening of **Park Palace Pronivias**, Lebanon

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Strengthening of masonry columns and arches of **Stalloni Gallery**, Italy

Strengthening of concrete floor slabs on five floors for **Vinci UK Fleet Street**, London, UK

Structural repair and rehabilitation of **High Court (Tribunale) building,** Italy

Fibrwrap engineers and technicians use the Tyfo® FIBRWRAP® System (TFS®) in order to provide structural solutions to owners (both state and private), architects and designers involved in rehabilitation and structural upgrade of buildings. Fibrwrap has a value-engineered approach and is involved in both preliminary design and construction in order to suggest and implement a tailor made solution to the client needs.

Fibrwrap has offered solutions for various buildings such as residential, commercial, historical (listed), new or under construction for which structural issues had to be resolved. Our technical proposal offers the most cost and time effective solution and covers the vast majority of structural deficiencies in existing or new structures, thus restoring the value of the property and extending its service life.

TFS® 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.
- Seismic retrofit of structural components and seismic upgrade for the improvement of the seismic behavior of buildings.
- 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)

TFS® Applications:

- Column, beam, slab and wall to increase shear strength, flexural strength, ductility and improve confinement.
- Stabilize and strengthen masonry and ceiling. Also can provide a lightweight, low profile rehabilitation system for balconies.
- 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.

The Tyfo® FIBRWRAP® System (TFS®) provides unique products for fire an extensive line of fire protection, available through the implementation of the Tyfo® Advanced Fire Protection (AFP®) materials which offer up to four-hour rating (per US prototype tests) and also unique systems for flame and smoke retardation.

Seismic and Fire-Resistant Upgrade of **Hotel "Kaningos 21"**, Athens, Greece

Rehabilitation and Strengthening of **Natural History Museum,** Los Angeles, California

Structural Rehabilitation of **"Le Bristol Hotel",** Beirut, Lebanon

TFS® Features:

- Thoroughly tested at independent laboratories
- Cost -effective
- Extends the service life of existing structures
- Significantly lowers 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
- Can be used to repair/strengthen historic structures while preserving their original appearance

Advantages - Benefits:

- **Extensive experience in the whole range of building projects (existing, new)**
- **Fibrwrap personel is close collaboration with owners, architects, designers or contractors, in search for the most suitable, customized and cost-effective solution**
- **Exclusive use of TFS® to cover any need for structural strengthening, rehabilitation, seismic retrofit interventions, upgrade, change of use or repairs in existing buildings.**
- **Minimum possible disturbance during works in progress, contributing to the continuity of the regural everyday function of the building**
- **Fire protection technology available through the Tyfo AFP® System**

Tyfo® FIBRWRAP® System (TFS®)

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 **TFS®** has been reviewed and approved by more independent authorities than any other composite system.

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 **TFS®** is a reliable composite strengthening system with more approvals, demonstrations and proven installations than any other competitive system in the industry.

The **TFS®** includes a carbon fiber solution that meets the International Building Code® (IBC®) requirements.

FYFE
Tyfo® FIBRWRAP® Systems

Network

Fibrwrap Construction Europe Territory

www.ThinkBAG.eu

An ever-expanding network beyond Europe

Working with FIBRWRAP Construction Europe Ltd. is equivalent to entering the largest family of companies worldwide, dealing with any kind of structural rehabilitation need. With offices across the globe, Fibrwrap is an international business with a local twist strengthening and protecting people, properties and assets everywhere.

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