



## **Construction reinforcement systems using FRP composites**

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### **Abstract**

Developments of Civil engineering sciences lead innovation and improvement using new methods and materials which have no background in the history of civil and construction. Among these innovations, FRP (Fiber Reinforced Polymer) has the particular position. The role of FRP composites in civil engineering was in the middle of attentions in recent years. Light weight, high resistance, and corrosion resistance are some characteristics which has made these materials useful in many aspects of civil engineering tasks. Having special attributes like high resistance to weight rate, corrosion resistance and facile transportation and implementation, made it a new window that has just opened to the civil engineers and today many constructions have been reinforced with these materials all over the world. Using composite materials in civil industry is a rolling stone market. Today, large amount of investments on construct and fix, makes construction maintenance very important. Studying concrete constructions behavior reveals many factors like: design and calculation errors, improper executions, change of the structure application, damages under the random loads, corrosion of concrete and steel and environmental conditions, which are degrading the resistance. Furthermore, changes in bylaws and regulations (which change the loading and the confidence rates) cause to evaluate and review the design of the structure and improvement and reinforcement – in case of need-. FRP systems are used for reinforcing concrete constructions and are good replacements for traditional methods like sticking steel plates, increasing cross section area with re-concreting and external pre-spinning.

**Keywords:** FRP, composite, fibers, polymer