

### Modern solutions for strengthening of framing systems for industrial buildings

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#### Summary

Repair and strengthening of concrete structures with Fiber Reinforced Polymer composites (FRP) constitute a large area of research in construction industry. FRP composites of various matrixes (epoxy, polyester, vinylester) and fibers (carbon, glass, aramid) can provide solutions for strengthening of reinforced concrete beams, reinforced concrete columns, unreinforced masonry and/or for timber members.

This thesis particularly focuses on strengthening techniques applied to reinforced concrete beams and columns.

The experimental work has involved the confinement of 21 types of concrete cylinder specimens wrapped with 2, 3 and 4 layers of carbon and glass fabrics embedded in epoxy resin. The results have been compared with mathematical models and using finite element methods and proved that the prediction of proposed models closely agree with experimental results.



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The present research works described shortly in this paper have shown the efficiency of FRP confinement for RC column for strength and ductility enhancement. More composite layers contribute to better compressive strength of the concret column.

*Keywords:* confinement, FRP, stress-strain models, strength and ductility

