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The experimental behavior of slabs strengthened by fiber reinforced polymer (CFRP)

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Abstract : The experimental behaviour of slabs strengthened by composite fiber reinforced polymer (CFRP) is presented in this paper. Three concrete slabs of 16 cm x 14 cm x 4 cm were made in laboratory conditions. The dimensions of the patches are calculated so that the ratio patch XP / YP is proportional to XD / YD of the slab. Dimensions of the composite patches are: 70x90x1 mm, 100x120x1 mm, 160x140x1 mm, the load is flexional punching load. The results given in the form of curves of loads - displacements measured to the center of the slab according to the force applied; show that the breaking load and ultimate correspondent displacement are influenced by the properties of the composite patch and the surface covered by the composite patch. It is observed that, the breaking load and ultimate displacement increase with the surface of the patch and properties of the composite. The third slab has the best behavior than the rest of slabs, the ratio of the displacement between the third and the second slab is 1.39 and the ratio between the third and the first slab is 1.95.

Keywords : Concrete slabs, composites, reinforcement, experiments.