

# **Punching Shear Resistance of High Strength GFRP Reinforced Concrete Flat Slabs**

**Ibrahim A. Sarhan<sup>1</sup> Akram S. Mahmoud<sup>2</sup> Mohamed A. Hussian**

## **ABSTRACT:**

**This study program has been arranged to test the behavior of punching shear for concrete slabs reinforced by an embedded glass fiber reinforced polymer (GFRP) reinforcements. However, the shear resistance of concrete members in general and especially punching shear of two-way RC slabs, reinforced by GFRP bars has not yet been fully investigated. Seven decades ago, many researches have been carried out on punching shear resistance of slabs reinforced by conventional steel and several design methods were created. However, these methods can be not easily applied to FRP-reinforced concrete slabs due to the difference in mechanical properties between (FRP) and steel reinforcement. sixteen specimens are to be cast in lab within two categories of reinforcements such as GFRP and equivalent steel reinforcements. In addition, based on experimental data obtained from the author's study and ACI model, the paper performed an evaluation of accuracy of proposed model. The results from the evaluation show that the ACI-formula gave inaccurate results with a large scatter in comparison with the test results of this study. A new design formula can be proposed for more accurate estimation of punching shear resistance of (GFRP) specimens.**