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## Strength Evaluation of Hybrid Reinforced Concrete Columns under Eccentric Loads

**Abstract-** This study presents an experimental investigation of the behavior of hybrid circular columns composed of outer precast reactive powder concrete (RPC) tubes filled with normal concrete (NC). The column specimens were subjected to an eccentric load producing both flexural and axial stresses within the section. The specimens consisting of 200 mm outer diameter with 400 mm height. The column specimens were divided into three groups, each group contains two specimens of thicknesses of outer RPC walls of 50 and 25 mm that filled with NC, in addition to RPC solid column section. The columns of first group were without any reinforcement. While the second group specimens were longitudinally reinforced, in addition to 180 mm spaced ties. The third group is composed of the same details as that of group two but with 90 mm ties spacing. The results show that, All RPC solid specimens give a higher load capacity from that of the hybrid specimens about 48%. It is noticed that increasing the RPC outer wall thickness improves the ultimate load capacity by 11% for hybrid specimens with 50 mm thickness wall than that of hybrid specimens with 25 mm thickness wall. Also, longitudinal and transverse reinforcement noticeably enhance the ductility and strength of the tested specimens compared with corresponding plain specimens.

**Keywords-** RPC short columns, hybrid columns, eccentric load, RPC tube columns filled with NC.

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