

ABSTRACT

This study investigates the structural performance of reinforced concrete columns with different reinforcement configurations cross ties, specifically comparing conventional columns with lateral ties to those enhanced with additional cross ties. Experimental testing was conducted using a Universal Testing Machine (UTM) to evaluate axial and lateral deformations under loading condition. Axial stress-strain relationships were derived and analyzed for both column configuration. Results indicate that while columns with cross ties demonstrated a marginal 5% increase in load-bearing capacity compared to conventional columns, the improvement is slightly significant. The maximum stress observed in the controlled specimen and columns with cross ties were observed. Similarly, longitudinal strain was observed. All tested specimens exhibited stress-strain behavior consistent with theoretical expectations. The study concludes that although cross ties offer slight enhancements, their impact on overall performance is limited. Further research is recommended with larger column diameters and varied cross tie configurations for more comprehensive analysis.