

Experimental Comparative Study on Composite RC T-Beams Behavior with Diverse Distributions of Headed Studs in Sagging – Moment Tensioned Concrete Media

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Abstract

With the purpose of evaluating the influence of both the numbers and configurations of headed-stud shear connectors in simply supported reinforced concrete T-beams of webs partially cast in and interconnected to steel channels at their soffits , an experimental program was carried out using three cases of studs quantities and distributions in addition to the control free-of-stud case . The beam of moderate non-uniform stud distribution of interior spacing not less than the T-beam breadth reconciled the prevalent advantages of the two other beams embracing uniformly distributed few and abundant studs separately ,whilst eliminating their probable defects. Specifically, respects of the defined favorite beam merit are : the flexural stiffness ,ductility and ultimate resistance in addition to the relative - slip constraint and integrity characteristics. Despite the concrete confinement in the zone of the steel channel, drastic drops in levels of the integrity and the ultimate bending resistance have occurred when shear connectors were eliminated.