Investigation on the Performance of RC Elements with Mechanical Connectors as an Alternate to Lapping

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ABSTRACT

Conventionally, rebar lapping has been the method of use in reinforced-concrete construction to ensure reinforcement continuity. Codes of practice globally recommend huge lapping lengths to ensure efficient force transfer mechanism between connected rebars with Indian standards recommending a lap length 30 times the rebar diameter and ACI 318 recommending provision of at least 40 times rebar diameter for both flexural and direct tension. In the case of higher diameter rebars, the lap lengths can be more than a meter and cause the lap region to be highly congested, creating construction issues. Couplers have been gaining momentum as the preferred method of rebar joining compared to lapping due to the reduction of lap length and rebar congestion. But, the cost of the couplers and workmanship required to limit the application to mass construction compared to common residential construction. This research work explores other alternate possibilities using economical mechanical connectors with reduced lap length compared to the standard recommendation.

Keywords: *Lap length, Mechanical connectors*