

Use of Welded Splices and Reinforcement Couplers as an Alternative for Lap Splicing

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Lap splicing is the most commonly used reinforcement connection method to obtain load path continuity in concrete structures. The overlap load transfer mechanism in the lap splices depends on the bond between steel and concrete to transfer the load. Use of lapping requires more steel in terms of design and installation which can lead to greater congestion within the concrete because of the amount of rebar used. To reduce the congestion within the concrete, new means of reinforcement connecting methods have been developed. Mechanical rebar connections and welded rebar connections have been introduced to the industry to overcome the congestion in reinforcement structures. The lack of knowledge on alternatives has led to the lack of implementation of alternatives. This study focusses on identifying the setbacks of implementing alternative means of splicing in Sri Lankan construction industry. A technical and economic feasibility analysis is conducted to determine the comparative benefits of mechanical splicing and welded splicing. Interviews and questionnaire survey results confirm the need of qualitative and quantitative details of alternatives for further implementation of alternatives. Major setback for the implementation of alternatives is the lack of awareness about the structural and economic benefits of the alternatives. Use of welded splicing is structurally and economically more effective than lap splicing and mechanical splicing.

Keywords: Lap splicing, Rebar couplers, Intermittent welded splicing