

Performance Evaluations of Lap Spliced Joint of Decked Bulb-Tee Type Modular Bridge

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Abstract : Precast decked bulb-tee girder or precast deck generally adopts in-situ connections of loop joints. Loop joint could be an effective method to connect precast concrete members where the width of joint is not wide sufficiently to allow the lap splice length of reinforcing bars. However, the regulation for the minimum bend diameter of looped rebar gives limitation not to reduce the thickness of precast concrete member; thus, in-situ connection adopting loop joint place a constraint on improving the structural efficiency of precast concrete member. Ultra high strength concrete (UHSC) is effective on reduce the development and lap splice length of reinforcing bar. In-situ connection with UHSC gives a merit to reduce connection width. This study intends to investigate the details of the longitudinal joint to be applied in the precast modular bridge using decked bulb-tee girder that has been recently developed in Korea. This paper presents the details applying UHSC and lap splices of straight reinforcement and results of tests. Several tests were performed on flexural specimens with longitudinal joints to verify the length of the lap splices and amount of transverse reinforcement, and to examine the flexural strength of the longitudinal joint.

Keywords : precast structure, decked bulb-tee girder, in-situ connection, UHSC, modular bridge

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