

Joint Structure in the Concrete Encasing Method of Existing Steel I-beams for the Repair of Fatigue Cracks

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In existing steel I-beam bridges, a fatigue crack often develops at the corner of the web and bottom flange immediately above the bridge support. This fatigue crack initiation normally causes the bridge to be replaced with a new one, since there is no effective repair method of preventing the crack propagation. So, we have developed a new repair method for the fatigue crack, which the end of the girder is covered with concrete. In this research, we verified the applicability of “Concrete Encasing Method” by conducting trial designs with the span and abutment height varied as parameters. Moreover, we conducted loading tests with full-scale I-beam bridges to consider of shear connector arrangement.