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Abstrak

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The current design practice for concrete bridge decks requires a top mat and a bottom mat of reinforcing bars. The chloride attack of the top mat reinforcing bars is a major cause of deterioration of bridge decks. Emprical evidence has indicated that the top transverse reinforcing bars can essentially be eliminated without jeopardizing the structural integrity of a deck. To explore this issue, the behavior of a four-span highway bridge deck subjected to a test truck and normal traffic loads is being investigated. The behavior of the bridge under the test truck and various combinations of truck loads has been analyzed with the finite-element method. These result confirm the fact that a properly designed bridge deck does not requiere top transverse reinforcement for sustaining the negative bending moment induced by traffic loads.