INCREASING BRIDGE DECK SERVICE LIFE

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Sponsor: INDOT/JTRP

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Research Objective

To develop a bridge deck that provides increased service life through the use of alternative corrosion resistant reinforcing steel

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Research Test Program

Bond Strength

Lab-splice specimens

Corrosion Resistance

Modified Macrocells

Cracking Performance

Slab Specimens

To Increase Bridge Deck Service Life

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Increasing Bridge Deck Service Life

The Indiana Department of Transportation is funding this project with an objective of developing a bridge deck that has a service life of 75-100 years. To potentially improve the durability and performance of bridge decks, new types of alternative materials are evaluated. The alternative materials considered in this research are four different types of solid stainless steel (316LN, Duplex 2205, Duplex 2304, XM-28), MMFX II microcomposite steel, dual coated steel with zinc and epoxy, zinc-clad steel, and hot-dip galvanized steel. The research addresses: 1) the bond behavior between alternative corrosion-resistant reinforcing steel and concrete, 2) the cracking performance, and 3) the corrosion resistance of alternative reinforcement. A total number of 48 lap-spliced beam specimens, 12 slab specimens, and 112 modified macrocell specimens were designed, constructed, and tested to evaluate the structural and material performance of these new materials.

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