

LABORATORY TESTING OF RAILROAD FLATCARS TO DETERMINE ULTIMATE STRENGTH AND REDUNDANCY

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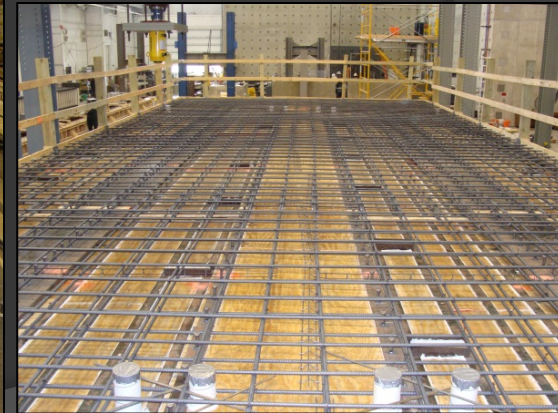
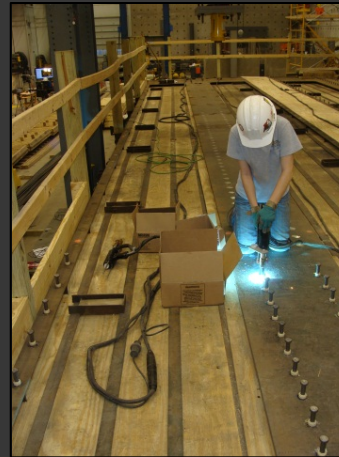
Research Objectives



- Determine Ultimate Strength of Railroad Flatcar Bridges
- Address the issue of Fracture Critical/Load Redundancy
- Validate proposed Load Rating Guidelines from Phase I

Research Tasks

- Load Railroad Flatcars (RRFCs) individually
 - Determine load distribution *within* RRFC
- Load with timber deck
- Load with concrete deck
 - Determine load distribution *between* RRFCs
 - Composite action with the use of shear studs
- Study fracture critical & load redundancy
 - Two girder system = fracture critical
 - Fracture one main girder



Laboratory Testing of Railroad Flatcars For Use as Highway Bridges on Low-Volume Roads to Determine Ultimate Strength and Redundancy

Several counties in Indiana use retired railroad flatcars for a bridge superstructure to replace existing deteriorating county bridges. There are over 130 railroad flatcar bridges in the state of Indiana. The main objective of this laboratory project is to provide greater confidence to county engineers when load rating these bridges by studying the ultimate strength and load redundancy of the bridge system. Testing in the laboratory creates the opportunities to test at larger loads, use a greater number of instrumentation, and simulate a controlled fracture test.

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