

Scientists work to stop bridge corrosion

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Purdue University engineers in West Lafayette, Ind., say they're developing a new generation of bridges that will be corrosion resistant.

The researchers say such bridges will utilize plastic bars reinforced with glass or carbon fibers, promising to double the number of years between expensive repairs.

Concrete-strengthening steel bars called "rebar," currently embedded in bridge-deck concrete, is exposed to de-icing road salt that seeps through pavement cracks, said Robert Frosch, an associate professor of civil engineering.

"Bridge decks generally have to be replaced every 20 or 30 years, which is very expensive, but replacing the rebar with bars made out of fiber-reinforced polymers could extend the lifetime of a deck to perhaps 50 to 100 years," Frosch said.

Purdue civil engineers have installed a bridge deck containing the fiber-reinforced polymer bars in a span over Interstate 65 near Demotte, Ind. Sensors inserted in the deck constantly record data that is remotely monitored at Purdue to determine how well the structure is performing.

The researchers plan to eventually publish papers detailing how the bridge deck responds.

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