



UTC Project Information	
Project Title	INVESTIGATING FEASIBILITY OF USING SILETO FOR BRIDGE DECK OVERLAY
University	Florida International University
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Funding Source(s) and Amounts Provided (by each agency or organization)	IBT/ABC-UTC funds: \$70,000 Match funds: \$35,000
Total Project Cost	\$105,000
Agency ID or Contract Number	69A3552348322
Start and End Dates	January 1, 2026 - June 30, 2027
Brief Description of Research Project	<p>Bridge decks across the United States continue to experience deterioration due to reinforcement corrosion, environmental exposure, and increasing traffic demands. Traditional overlay materials such as normal-strength concrete and some polymer-based systems often exhibit limitations related to durability, bond performance, curing time, or long-term crack resistance. Sileto, as a viable material for bridge deck overlays, has demonstrated promising mechanical and durability characteristics in preliminary studies conducted by FIU and Construction Technologies Laboratories (CTL), with compressive strengths approaching 12,000 psi at 28 days and durability behavior comparable to UHPC. However, its feasibility and performance as a bridge deck overlay system has not yet been validated through comprehensive structural testing. To this end, the research will combine small-scale material-level tests and large-scale structural tests to establish bond behavior, durability, abrasion resistance, long-term performance under cyclic loading, and overall structural capacity. The scope includes (1) direct bond testing on small specimens to evaluate surface preparation methods and overlay thickness effects; (2) freeze-thaw durability and long-term bond assessment; (3) abrasion resistance testing in accordance with ASTM C944; and (4) large-scale testing of a steel-girder-supported concrete deck upgraded with a Sileto overlay, including five million load cycles followed by ultimate load testing and post-test forensic evaluation. The results will provide critical performance data, recommended construction protocols, and preliminary guidance for implementation of Sileto as a practical overlay system. Outcomes of this project directly support the IBT/ABC-UTC mission by introducing fast-curing, durable, and field-deployable material that can reduce construction time, minimize traffic disruption, and significantly enhance the service life of aging bridge infrastructure.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.
Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/investigating-feasibility-of-using-sileto-for-bridge-deck-overlay/